Before the FEDERAL COMMUNICATIONS COMMISSION Washington, D.C. 20554

In the Matter of)	
)	
Promoting Expanded Opportunities for)	ET Docket No. 10-236
Radio Experimentation and Market Trials)	
Under Part 5 of the Commission's Rules and)	
Streamlining Other Related Rules)	
)	
2006 Biennial Review of Telecommunications)	ET Docket No. 06-105
Regulations – Part 2 Administered by the)	
Office of Engineering and Technology (OET))	

To: The Commission

REPLY COMMENTS OF ARRL, THE NATIONAL ASSOCIATION FOR AMATEUR RADIO

ARRL, the national association for Amateur Radio, formally known as the American Radio Relay League, Incorporated (ARRL), by counsel and pursuant to Section 1.415 of the Commission's rules (47 C.F.R. § 1.415) hereby respectfully submits its reply to certain of the comments in this proceeding filed to date. The comments to which ARRL herein replies were filed in response to the *Notice of Proposed Rule Making* (the Notice) released November 30, 2010 (25 FCC Rcd. 16544; FCC 10-197; 76 Fed. Reg. 6928). The Notice contains broad proposals to substantially expand and deregulate the Experimental Radio Service and to create new opportunities for essentially

¹ ARRL did not file comments earlier in this proceeding. The due date for comments was March 10, 2011. It is noteworthy that those who may have relied on the Commission's EDOCS system for determination of comment dates in this proceeding have been seriously misled by the Commission's failure to update that database. Attached hereto as Exhibit A is a printout from the EDOCS system, advanced search function, for this docket proceeding. The Exhibit shows that as of April 5, 2011, almost a month after the comment date in this proceeding, the Commission's EDOCS system shows no comment or reply comment date. The publication of the Notice in this proceeding in the Federal Register on February 8, 2011was substantially delayed after the release date of the Notice on November 30, 2010. If the Commission is unable to update its EDOCS system or provide some other convenient means on its own website for members of the public to determine comment and reply comment dates in docket proceedings, it should remove from the EDOCS system the fields for comment and reply comment dates, so that parties which might wish to file timely comments and reply comments will not rely on that database and thus will not be misled.

unregulated experimental operations. Specifically, the Notice proposes to: (1) create new opportunities for universities and researchers to use a "wide variety of radio frequencies for experimentation" under a "broad research license" that eliminates the need to obtain prior authorization before conducting individual experiments; (2) allow researchers to conduct tests in specified geographic locations with pre-authorized boundary conditions through the creation of new "innovation zones;" (3) promote advancement in the development of medical radio devices by creating a medical experimental authorization that would be available to qualified hospitals and medical institutions; (4) broaden opportunities for market trials by revising and consolidating the Part 5 rules; (5) promote experimentation by consolidating and streamlining existing rules and procedures; and (6) open new opportunities for experimentation by making targeted modifications to rules and procedures. Some of these proposals are of concern to ARRL due to the current, widespread use of Amateur Radio allocations for Experimental Licenses and Special Temporary Authorizations (STAs). Comments filed by several parties to date in this proceeding exacerbate these concerns. In the interest of the nearly 700,000 licensees of the Commission in the Amateur Radio Service in avoiding interference in Amateur Radio allocations as the result of proposed rules which may be adopted in this proceeding, ARRL states as follows:

1. ARRL is generally supportive of the Commission's Part 5 rules in their present configuration for experimental licensing and issuance of STAs. The current Part 5 rules provide a very flexible, well-administered and robust venue for the development of new technologies and products. ARRL and individual Amateur Radio operators have applied for and been granted Experimental licenses and STAs from time to time in those

relatively rare cases in which the Part 97 service rules are not sufficiently flexible to permit experimentation with new technologies or refinements of existing technologies, or for technical educational purposes.² In those cases the present rules and procedures have been satisfactory. ARRL suggests herein some minor modification to the procedures now in place that will facilitate interference avoidance and compatible uses of spectrum in which experiments are routinely conducted (including bands allocated to the Amateur Radio Service). On the whole, however, the current Experimental and STA operations conducted in Amateur Radio allocations have been conducted by non-Amateur licensees without an excessive number of interference complaints.³ There are notable exceptions to this generalized conclusion, however. Severe interference to Amateur Radio operations over wide areas has occurred in certain instances, and in those cases, the Commission has exhibited a notable inability or unwillingness to respond to them.

2. Broadband over Power Line (BPL) "experiments" conducted during much of the past decade pursuant to experimental licenses provide perhaps the best recent example of this phenomenon. Neither the Commission's Office of Engineering and Technology (OET) nor its Enforcement Bureau has been responsive to documented complaints of interference from BPL systems operating pursuant to experimental licenses. In Briarcliff Manor, New York, for example, an experimental license had been issued for operation of a BPL system which was shown to have been operating well outside the authorized parameters and which was causing ongoing, widespread

² At the present time, ARRL is the holder of an outstanding experimental license for medium frequency propagation experimentation and research, which has been facilitated by renewals and modifications during the past few years. The staff in the Experimental Licensing Division is to be complemented on its responsiveness in granting these authorizations expeditiously.

³ Part of the reason why there have not been more reported instances of interference, however, is that STA and some experimental operation is done on a relatively short-term basis, and with very short duty cycles.

interference which had been demonstrated to and witnessed personally by a member of the Commission's own Enforcement Bureau staff. Yet, no action was taken for a period of <u>years</u> to address this problem. Absent a far more responsive enforcement effort where interference is created by experimental license or STA holders to licensed services, it is difficult to justify the largely unregulated experimental licensing program proposed in the Notice in this proceeding. As will be discussed below, there is nothing in the Notice that provides any assurance that the Commission will do any more to remedy interference from experimental license operations than it has in the past.

3. The Notice at paragraph 16 claims that the current Part 5 experimental and STA authorization processes and rules are an "ill fit for the culture of inquiry and exploration at academic and research institutions, and ... it is not nimble enough to account for the rapid changes and modifications typical of today's technological research." It is asserted that the current rules limit "experiments to a narrowly defined inquiry, specific frequencies, emissions and power levels" and thus can "prevent researchers from using the results of experiments to try out new ideas and make innovative changes unless they obtain a new or modified authorization. The time and process for obtaining experimental authorizations can also be a roadblock to innovation." These unsupported, assumed defects in the current experimental licensing procedures are, in ARRL's experience with the experimental license program, not correct. ARRL observes that the Commission has regularly and liberally granted wide-bandwidth experimental licenses and STAs quickly and with very few regulatory impediments, for broad-based courses of experimentation for up to five years at a time if the circumstances justify such. Electronically filed applications call for only minimal information and the

applications are not burdensome. Multiple experimental licenses are seldom required and renewals are timely and responsively granted. If government spectrum is specified by an applicant, the Commission's staff coordinates the proposal in advance with the Interdepartment Radio Advisory Committee (IRAC) of the National Telecommunications and Information Administration (NTIA). The OET staff also typically coordinates with the Commission's bureaus with jurisdiction over the licensed radio services whose allocated or assigned spectrum is proposed to be utilized by an experimental license applicant. However, even with these minimal procedures in place to protect licensed radio services from interference, the process is simple and largely invisible to the applicant. It is inexpensive to apply for an experimental license or STA, and there is at most only minimal post-grant oversight by the OET staff over ongoing courses of experimentation. ⁴ Thus, the assumption that the current experimental licensing system is broken and needs fixing in order to encourage innovation or technological advancement is simply incorrect. The present application process is efficient in most cases and provides at least some advance predictive indication of compatibility between the experimental operations and incumbent licensees' use of the same or adjacent frequency bands. This is *not* to say that compatibility between licensed incumbents and experimental license or STA holders is assured by such a limited regulatory process; Quite the contrary: the process is often quite insufficient to prevent interference, as discussed above. Nor is the generalized non-interference requirement in Section 5.111 of

⁴ Perhaps the most important oversight function provided by the OET staff over experimental operations, provided at the time of issuing authorizations -- and if and when those authorizations are renewed -- is to insure that the experimenters do not create "allocations by Experimental license." If the Commission does not regulate the courses of experimentation as it now does, the very real possibility exists that regular, ongoing uses of the radio spectrum will be made outside the normal course of spectrum allocations and station licensing. The Notice proposals would all but eliminate this very limited but absolutely necessary oversight function.

the Commission's Rules sufficient to prevent interference. In many cases, Commission licensees are unaware of the source of interference from an experimental operation.

Depending on the experimental technology employed, the source of the interference can be difficult to ascertain after the fact and thus often goes unreported. Nevertheless, elimination of even the rudimentary level of oversight presently provided by OET staff at the application stage would doubtless increase instances of interference to licensees by orders of magnitude.

4. The Notice proposes to create a "program experimental license" where qualified institutions will be able to use a broad range of frequencies for research and experimentation without having to obtain prior authorization for the use of specific frequencies. Holders of a research program experimental radio license "will be given broad authority to conduct any experiments that further the goals of innovation and efficiency in spectrum use under such a license" according to Paragraph 19 of the Notice. Though the Commission recites in this same paragraph the "fundamental principle that experiments must be designed to avoid harmful interference to existing services," it is unclear how that fundamental principle can be enforced in such an unregulated environment when it is not enforced now. ARRL suggests that it cannot. The Notice states that the reporting requirements that would be applicable would be the periodic filing of a narrative report. Nothing about this process necessitates any prior, private sector coordination with incumbent licensees within international and domestic allocations. Those allocations were the result of careful planning, and any divergence from the allocation planning should necessitate a compatibility analysis, to be done either by the applicant or by the Commission staff. The Notice, however, does not require any

advance showing or even a representation by the applicant of compatibility with incumbent licensees; and nothing is proposed that would obligate the qualified research institutions⁵ to demonstrate *ex ante* that interference will not be caused to licensed radio services from the broad course of experimentation to be undertaken.

5. Of greater concern is that there are virtually no limits proposed on the frequency bands that are available for these new classes of experimental license. The Notice, at paragraph 21, states that the Part 15 restricted bands⁶ would be excluded. After some discussion of the use of the bands above 38.6 GHz, the Commission refused to restrict access to those bands except those that are listed in footnote US246 of the Table of Frequency Allocations. Other than the Part 15 restricted bands, therefore, the Commission "would permit licensees to conduct experiments on all other frequencies." This is vastly overbroad authority. There is no indication that research institutions are skilled in interference avoidance or have any incentive to avoid interference to incumbent licensees. High-Frequency (HF) bands between 3 and 30 MHz, for example, which have worldwide propagation capabilities and potentially very large interference contours, should be much more carefully regulated than those bands which have a high re-use capacity, such as those above 40 GHz. In some bands used by Amateur Radio operators at HF, VHF, UHF and in the microwave ranges, there are exceptionally weak-signal communications being conducted on an ongoing, daily basis which cannot tolerate cochannel experimental operation, even if not geographically co-located with experimental

⁵ The Notice is unclear as to what qualification or definitional criteria for such institutions will be applied.

⁶ i.e. the bands prohibited for intentional radiators listed in Section 15.205.

operations.⁷

6. Some comments filed in this proceeding to date by manufacturers of radio frequency equipment take the expected position that these broad authorizations for essentially unregulated experiments should be extended to commercial ventures and not limited to research institutions and universities. The comments of the Telecommunications Industry Association (TIA) and those of Motorola Solutions, Inc. (MSI) are typical. They suggest (perhaps correctly) that there is nothing that differentiates universities and research institutions from for-profit entities in terms of track records of technological innovation. Furthermore, they argue (again perhaps correctly) that nothing differentiates commercial entities from research institutions and universities in terms of (as the Commission put it at paragraph 23 of the Notice), the "unique abilities of universities and research institutions to act as trusted stewards of the radio resource." ARRL suggests that there is no basis (and the Notice offers none) for assuming that any entity, commercial or non-commercial, can be categorically relied upon to act as a "trusted steward of the radio resource" under the operating paradigm proposed in the Notice. The Notice proposal goes too far in deregulating experimental authorizations and STAs, and the equipment manufacturers' attempts to expand on the misguided proposals in the Notice poignantly expose the flaw in the entire concept. The current minimal level of Commission regulation and oversight of potentially interferencecausing experimental operation and exploitation of the experimental licensing process is

⁷ It is noted in this context, however, that many Amateur Radio stations are located on University campuses where research experimental license operations would occur under the Commission's proposals in this proceeding. Furthermore, many university campuses and research facilities are in close geographic proximity to or within residential areas where Amateur Radio operation is typically conducted.

necessary and should be continued in its present form, and additional enforcement resources should be dedicated to the program.

7. The Notice asks at Paragraph 22 whether confining such research operations to a university campus, for example, would be sufficient to limit interference potential.

Alternatively, the Notice asks what particular power flux density would be sufficient at a campus border in order to protect licensed operations from interference. In general, however, the Commission states at Paragraph 25 that it does not intend to specify particular methods that an experimenter must use to avoid interference. It essentially relies on the experimenter to do whatever the experimenter thinks is necessary in order to avoid interference:

...we emphasize that all experiments must be conducted on a non-interference basis to primary and secondary licensees, and that the licensee must take all necessary technical and operational steps to avoid harmful interference to authorized services (footnote citation omitted). Before conducting tests, a licensee must evaluate the propagation characteristics of the frequencies to be used in individual experiments, the operational nature of the services normally operating on those and nearby frequencies, and the specific operations listed within the Commission's licensing databases.

This is an unjustified and unjustifiable delegation of Commission authority, to the extent that no Commission evaluation of the extent or sufficiency of the licensee's efforts to ascertain the likelihood of interference and to address it in advance of commencement of operations is ever made. It is a completely inadequate provision for interference avoidance. The Commission has no basis for assuming that an experimenter is capable of

⁸ There is no single, fixed PFD limit at a campus edge that will reliably protect geographically proximate Amateur Radio stations from interference. The limit would depend on what type of Amateur Radio operations are nearby; what receive antenna systems are in use; and especially what bands are used by the Amateur station. Many other variables affect the interference potential of an experimental operation, including the duty cycle of the experiments and many other factors.

or has any incentive to configure its experiment to avoid interference to licensees. Nor, based on past Commission performance, does the victim licensee have any reason to expect that the Commission will utilize its enforcement resources to address interference once reported, if indeed the source of interference is ascertained and then reported to the Commission.

8. The only proposal that the Commission has for addressing interference to licensed users in advance is to require the research experimenter to post experimental operation information on a web site. At paragraph 26 of the Notice, the Commission states: "[b]ecause the appropriate level of notification to and coordination with incumbent licensees will necessarily vary for each of these experiments, we are not proposing to establish a specific coordination requirement for research program experimental radio licenses." The combination of no Commission oversight; no individual application process; the apparent inability of the Commission to enforce the Section 15.111 non-interference rule in individual cases; and this specific refusal to require advance coordination with the licensees who are predictive victims of the interference will lead to an unregulated radio frequency environment; substantial abuses of the system; avoidance of licensing where such is called for and available; and increased instances of interference.

9. ARRL has critically noted in other rulemaking proceedings recently that the Commission has in recent years placed the burden of interference resolution or avoidance

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⁹ It is noted that even after the enactment of the rules governing BPL, some BPL manufacturers chose to continue to operate pursuant to experimental licenses because that operating authority allowed the manufacturers to avoid the few interference avoidance provisions of the Part 15 rules that were adopted governing such systems, such as listing the operations in a public database.

on the victim of interference from a newcomer to a frequency band. The instant Notice does this again. The Commission proposes at paragraph 27 as follows:

First, we propose to require that prior to commencement of any experiment or test, certain information be made publicly available via a Commission developed web-based registration. We propose that such registrations contain contact information for the researcher in charge who can address concerns raised prior to testing as well as act as a "stop buzzer" in the event that a licensee reports an unanticipated interference incident during the actual testing phase. In addition, we propose that these registrations contain the frequencies or frequency bands under test, the maximum effective isotropically radiated power (EIRP) or effective radiated power (ERP) under consideration (as applicable to the proposed experiment) and a description of the geographic area in which the test will be conducted. Should other information also be collected? We propose that these registrations be completed at least seven calendar days prior to commencement of any test or experiment to ensure that interested parties have sufficient time to assess whether they believe harmful interference may occur to their systems.

This places the burden of determining the interference potential of a given experiment (and the burden of regularly checking the web site for new experiments) on individual Amateur Radio licensees in the case of non-Amateur research experiments conducted in Amateur allocations. *This is precisely backwards*. Furthermore, it creates a minimal, seven-day "shot clock" for objections to be raised. This is unfair to the licensee who may be affected. Furthermore, the information to be provided by the experimenter is woefully inadequate. At the very least, the information provided must include the frequency range of the experiments, the emission designator used, the antenna height, location and gain, the antenna pattern, antenna azimuths and elevations, the duty cycle of transmissions and the power level, as well as detailed contact information including 24-hour telephone and e-mail information for the representative of the research experimenter. Specific dates and times of experiments should be provided to the extent scheduled, and scheduling

information should be updated regularly. All of this information should be provided <u>far</u> in advance of the commencement of the experiments – by at least 30 days.

10. In order to avoid the improper shifting of the burden of interference resolution to the licensee, however, the Commission should approach any broad experimental process in a different way than proposed in the Notice. The Commission claims at Paragraph 26 of the Notice that:

Prior to a new spectrum user's commencement of operations, notification is generally conducted to ensure that harmful interference concerns can be identified and corrected. In many cases under our existing experimental licensing procedures, we issue grants that are conditioned on notifying or successfully coordinating with existing licensees.

In ARRL's experience, despite requests to the Commission to implement such a prior notification procedure, neither notification nor coordination is required or conducted in advance of experimental operations in Amateur Radio Service allocations. As noted above, the Commission does not propose in the instant proceeding to create any prior coordination requirement for research experimental licenses because the "level of coordination" or notification will vary depending on the experiment conducted. ARRL suggests that the justification for not requiring advance coordination, or at least priot notification with respect to <u>any</u> experimental operation, is not at all well-taken. The Commission has a perfectly workable notification procedure in at least one context, and it has had such a system in place for several years. With respect to experimental licensing applications specifying use of broadcast (Part 73) and broadcast auxiliary (Part 74) domestic spectrum allocations, the Commission typically places among the conditions on such grants the obligation of the licensee to contact the Executive Director of the Society of Broadcast Engineers (SBE) prior to commencement of tests pursuant to that

experimental license. That information is then disseminated from SBE's offices to the individual volunteer coordinators of broadcast auxiliary spectrum in broadcast markets. In this way, licensees are alerted to the incoming experimental operations and STAs and can take necessary actions to avoid or resolve interference *in the private sector* if and when it arises. This process has worked well, and cooperatively; it has benefited the experimenter and the incumbent licensees, and it should be extended. In the case of research and other experimental operations in Amateur Radio allocations, there should be established a similar notification process whereby research experimenters who intend to use any Amateur Radio allocation are obligated well in advance of commencement of operations to notify ARRL's regulatory information office of the details of such operations. ARRL will then disseminate to Amateur Radio frequency coordinators or other user groups and to radio Amateurs generally information about the incipient research experimental operation. Whether or not the Notice proposals are adopted in this proceeding, *this process should be implemented forthwith*.

11. Experimental operations are typically conducted without reference to the normal processes used in creating and modifying (from time to time) the domestic table of allocations for licensed radio services or the licensing/frequency assignment process. Those are scientific processes that are done based on careful study of interference phenomena and evaluation of compatibility as a predicate. None of those procedures are used in connection with the experimental licensing process. While there should be a robust experimental licensing system that is responsive to the need to foster technical development and to provide for short-term uses that are consistent with and predictably will not disrupt ongoing licensed operation in allocated spectrum, the Commission must

understand that it has <u>two</u> constituencies here, not just one. The Notice proposal in this proceeding is aimed exclusively at extending technological research by non-commercial entities. There is nothing wrong with new methods of promotion of such courses of experimentation (assuming *arguendo* that there are some impediments to such experimentation now, which is not conceded), provided that those new methods are not implemented at the expense of the licensed radio services that provide important public interest benefits daily. The Commission has in the Notice proposal cast aside the legitimate interests of licensed services in managing interference from Experimental licensees.

12. ARRL would suggest that the premises, the conclusions drawn from those premises, and the procedures proposed in the Notice with respect to research experimental licenses are misdirected. The proposal to create technical "innovation zones" is of the same ilk. It is unclear how these "innovation zones" differ substantially from the FCC/NTIA Spectrum Sharing Innovation "Test Bed" for technological development, ¹⁰ and the Notice does not explain the distinction adequately other than in terms of the frequency bands to be made available. In any case, however, as the instant Notice proposal would subject operations in the innovation zones to the same requirements as for normal experimental licenses, ¹¹ and because of the proposal at

We tentatively propose to establish the same types of application and reporting requirements for innovation zone program experimental radio licenses that we require for research program experimental radio licenses, except where described differently, below. We propose to require the responsible party to file an application that describes the requested geographic

See, FCC ET Docket No. 06-89 and NTIA Docket 080129095-8096-01. This "Test Bed" is in the 410-420 MHz band for Federal experiments and the 470-512 MHz "T-Band" for non-Federal experiments.
 It is not clear, however, that this is actually true. Though the Commission states at paragraph 41 that it intends to subject innovation zone experiments to the same requirements as regular experimental licenses ("Licensees nevertheless would still be bound by the general limitations that come with an experimental license"), it states at paragraph 44 as follows:

paragraph 41 of the Notice that "each licensee must hold appropriate technical credentials demonstrating advanced technical competence in radio engineering," this proposal is of less concern to ARRL than is the research experimental license proposal. Nevertheless, ARRL requests that the notification procedure set forth hereinabove should be applied to innovation zone experiments if any are conducted in Amateur Radio spectrum.

13. It is indeed troubling that the Commission proposes at paragraph 42 of the Notice to allow "innovation zones" to utilize virtually all frequencies except the Section 15.205 Restricted Bands. Some bands, as discussed above, are distinctly unsuitable for experimentation and inclusion in an unregulated "innovation zone." Moreover, the Commission asks how it should "treat geographic areas and frequencies that we consider, here, to be in the Commission's inventory because they are not licensed?" These areas, the Notice states, are "areas that are not currently licensed (sic), areas that did not receive the necessary minimum bids at auction and areas where the licensee has returned the license to the Commission." The Commission should understand very clearly that Amateur Radio spectrum allocations do not include specific frequency assignments. This does not, however, indicate that it is spectrum that is "not currently licensed." Most Amateur allocations are utilized ubiquitously and on a frequency agile basis. Some Commission documents have mistakenly assumed from this status that Amateur allocations can be included in an inventory of spectrum that is "not licensed." Because of the frequency agility and ubiquitous (fixed, mobile and temporary fixed) nature of the uses of Amateur spectrum, Amateur bands are uniquely unsuitable for inclusion in any

area of operation, the frequencies to be used for testing, the maximum power levels associated with planned operations, and any other relevant technical characteristics pertaining to test equipment, antennas, etc., that would be necessary to identify and mitigate potential interference. An innovation zone licensee would then be permitted, under the terms of its license, to design and conduct any test that meets these criteria.

"innovation zone" that might be created, whether those zones are in rural or urbanized areas. ARRL has no comment concerning the geographic locations of "innovation zones" to the extent that the frequency bands available for such operation do not include Amateur Radio allocations. If any Amateur allocations are included in any "innovation zones" despite the unsuitability of such bands for this purpose, the Commission must at least create and firmly enforce the notification procedure outlined hereinabove for experimenters to provide detailed notification to ARRL's regulatory information office of proposed operation well in advance of commencement of operations.

14. Finally, ARRL notes the Commission's proposal to establish a specific medical program experimental radio license, as something of a test-bed for use by health care equipment manufacturers and developers. This proposal does not raise as many of the same concerns expressed above as do the research experimental license proposal and the innovation zone experimental license proposal. This is because (1) the Commission proposes that the medical program experimental radio license would be granted to the medical institution that creates and manages the test bed environment in which the specific research activities will be conducted, as opposed to the manufacturers and experimenters who may be conducting the actual tests; and (2) the experiments would be conducted in connection with regulatory requirements of (and presumably with the oversight of) the Food and Drug Administration (FDA). Recent instances in which medical equipment manufacturers have proposed uses of Amateur Radio spectrum ¹² which is either incompatible with ongoing Amateur Radio operation or which is not

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¹² See, e.g. ET Docket 09-36, Alfred E. Mann Foundation, Establishment of a Medical Micro-Power Network Service; and ET Docket 08-59, Medical Body Worn Area Networks. The major concerns with respect to both of these proposed uses in Amateur Radio spectrum is the potential for interference susceptibility of medical RF devices from licensed Amateur Radio operation.

shown to be compatible, provides little assurance that medical program experimental licenses could be granted for broad courses of experimentation on Amateur radio spectrum. However, with appropriate notifications to ARRL as proposed hereinabove relative to any medical equipment experiments to be conducted in Amateur allocations; provided that the eligibles for these experimental licenses include only medical facilities and not manufacturers; and provided further that experimenters are obligated to address interference susceptibility issues before commencement of experimental operations and affirmatively assume all responsibility for such interference, this proposal appears workable. ARRL notes again, however, that the ubiquitous and frequency-agile nature of Amateur Radio spectrum use makes such spectrum largely unsuitable for any medical equipment experimentation and especially for that equipment that might, if it malfunctions, have an adverse effect on patient welfare.

15. In conclusion, ARRL reiterates that there is nothing fundamentally wrong with the present paradigm for Experimental licensing and STA issuance under Part 5 of the Commission's Rules. It is an efficient and generally well-administered program. The application processes are not burdensome. They are not expensive. The procedures do not involve substantial delay. There is no overly burdensome oversight. In fact, the enforcement processes are seldom, if ever, applied. The Commission's assumptions underlying the Notice proposals in this proceeding are, in ARRL's view, incorrect. There is no good reason to change the rules. What little oversight there is in the processing of initial and renewal grants of experimental licenses or STAs is necessary in order to determine at least some minimal level of compatibility with licensed services in advance of granting an experimental license or STA.

16. The Commission in this proceeding has inadequately considered the needs and interests of its licensees, including the almost 700,000 licensees in the Amateur Radio Service, because it has made inadequate provisions to protect those licensees from interference from broad-based experimental operations. Regardless of whether or not the Commission proceeds with any of these new classes of Experimental license, it must condition each and every Experimental license or STA grant that permits operation within Amateur allocations to notify ARRL's headquarters offices, not less than 30 days prior to commencement of operations, of the details of the operating parameters of the experimental operation as outlined hereinabove. This is an absolutely critical provision if any of the Notice proposals is enacted, and it should be done even if none are. The Commission should not expand the research experimental license as proposed in the comments of Motorola Solutions, Inc. or TIA.

Therefore, the foregoing considered, ARRL, the national association for Amateur Radio, respectfully requests that the Commission take no action with respect to the proposed research experimental license or the proposed innovation zones. However, if the Commission does implement some configuration of either type of experimental license, or if it implements the medical program experimental license as proposed in the

Notice, that it do so only consistent with the procedures and safeguards suggested in these reply comments.

Respectfully submitted,

ARRL, the national association for Amateur Radio

225 Main Street Newington, CT 06111-1494

By: <u>Christopher D. Smlay</u>
Christopher D. Imlay
Its General Counsel

Booth, Freret, Imlay & Tepper, P.C. 14356 Cape May Road Silver Spring, MD 20904-6011 (301) 384-5525

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PROMOTING EXPANDED OPPORTUNITIES FOR RADIO

EXPERIMENTATION AND MARKET TRIALS UNDER PART 5 OF THE COMMISSION'S RULES AND STREAMLINING OTHER RELATED **RULES/2006 BIENNIAL REVIEW OF TELECOMMUNICATIONS REGULATIONS - PART 2 ADMINISTERED BY OET**

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